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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/509,291

09/23/2004

Lars Gronroos

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27268 7590 08/05/2010  
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EXAMINER

CHOI, PETER Y

ART UNIT

PAPER NUMBER

1786

NOTIFICATION DATE

DELIVERY MODE

08/05/2010

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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<b>Office Action Summary</b>	<b>Application No.</b> 10/509,291	<b>Applicant(s)</b> GRONROOS ET AL.	
	<b>Examiner</b> PETER Y. CHOI	<b>Art Unit</b> 1786	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 11 June 2010.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-13 and 25-34 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 and 25-34 is/are rejected.
- 7) ☒ Claim(s) 32 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 September 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                    | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicants' submission filed on June 11, 2010, has been entered.

### ***Claim Objections***

1. The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).
2. Misnumbered claim 32 (second occurrence) to 34 been renumbered as claims 33-35. The Office Action will be based on these numbers.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

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3. Claims 1-12 and 25-35 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Regarding claims 1-12 and 25-35, claim 1 recites a filler embedded throughout the fibrous web, and claim 27 recites a filler embedded throughout the plurality of fibers. Applicants' specification, such as at page 5 line 33 to page 6 line 16, does not disclose such a structural limitation, wherein a filler is embedded throughout the fibrous web or the plurality of fibers. Therefore, the limitations constitute new matter.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-13 and 25-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,171,730 to Morita in view of GB 1,104,987 to Dow Chemical Co. (herein referred to as "Dow") and WO 01/79606 to Grönroos.

Regarding claims 1-13, 25 and 26, Morita teaches a fibrous web comprising an amount of solids, wherein the solids include fibrous material, and a filler included within the fibrous web, wherein the filler is a substance in a granular form, wherein the filler settles in spaces between a

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plurality of fibers of the fibrous material so that bonds between the plurality of fibers of the fibrous material are maintained, and wherein the amount of filler used is less than 50wt% (Morita, column 1 line 8 to column 5 line 6, Examples 1-3, claims 1-5). It should be noted that in the case where the claimed ranges overlap or lie inside ranges disclosed by the prior art, a prima facie case of obviousness exists. *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). Additionally, it would have been obvious to one of ordinary skill in the art at the time the invention was made to vary the amount of filler used, such as within the claimed range, based on the desired brightness, smoothness, and opacity of the resulting coated paper web, suitable for the desired application.

Morita does not appear to teach that the filler is embedded throughout the fibrous web, and that the filler is rotationally symmetrical having the claimed structure.

Regarding the claimed filler being embedded throughout the fibrous web, the prior art teaches that the pigments should be impregnated only into the surface of the substrate paper, as impregnating in the entire bulk of the paper decreases the void volume to result in lower sensitivity (Morita, column 2 line 66 to column 3 line 11). However, the prior art does not appear to recite that the pigments are *necessarily* only impregnated into the surface of the substrate paper, as the prior art additionally recites that the depth of impregnation may vary and is not restricted (Id.). Additionally, Dow teaches an improved paper comprising a nonwoven web of pulp fibers and substantially spherical particle filler, wherein the particles are enmeshed in the paper web (Dow, page 1 line 11 to page 2 line 90, Tables I-V, claims 1-11). Dow teaches that the particles are preferably between 3 and 50 microns in diameter (Id., page 1 lines 50-53). Dow teaches that if papers of minimum bulk density are desired, a maximum quantity of

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particles is incorporated therein, whereas if a maximum physical strength is desired, generally a small proportion is used (Id., page 2 lines 49-87). Dow teaches that the incorporation of the polymer particles provide, on an equal basis weight comparison, a significant increase in the stiffness of the paper as well as a significant increase in the caliper, which makes it possible to form papers with greater stiffness, lighter weight, and increased caliper (Id.). Based on the method of forming the paper, such as at page 1 lines 58-70, the particles appear to be embedded throughout the paper. Dow teaches that the improved paper has improved opacity, stiffness and insulating properties and significantly reduced density without substantial loss in tear-resistance and bursting strength (Id., page 1 lines 34-39). It would have been obvious to one of ordinary skill in the fibrous paper web art at the time the invention was made to form the fibrous paper web of the prior art, wherein the filler is embedded throughout the fibrous web, as taught by Dow, motivated by the desire of forming a conventional fibrous paper web having minimum bulk density in addition to significantly increasing the stiffness and caliper of the paper, while improving opacity.

Regarding the claimed filler structure and composition, Morita teaches that the filler is a substance in particle or granular form, such as kaolin, titanium oxide, magnesium silicate, calcium silicate, and calcium carbonate. However, the prior art does not appear to teach that the filler is rotationally symmetrical having the claimed structure.

Grönroos teaches a fibrous web suitable for use in forming paper, comprising fibrous material and a filler, wherein the filler is a substance in granular form, having a rotationally symmetrical shape and an inner part and a crust part, whereby the density of the inner part is lower than the crust part, wherein the density of the inner part is about 10 to 90% of that of the

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crust part, wherein the filler may additionally comprise a binder to attach the filler to the fibrous web (page 1 lines 3-26, page 3 lines 2-9, page 4 line 28 to page 5 line 31, page 7 lines 4-34, page 8 lines 9-19, page 9 lines 19-29, page 10 lines 3-29, page 11 lines 25-34, page 12 lines 5-9, page 12 line 32 to page 13 line 4). Grönroos teaches that the pigment comprises a lower density than conventional pigments, which allows the opacity to increase while increasing the volume of the pigment, and that the pigment is plastically deformable, which allows the pigment to be flattened by calendaring to form the surface of a desired shape. Grönroos teaches that the filler or pigment provides the paper with a high opacity and brightness due to the pigment. It would have been obvious to one of ordinary skill in the paper art at the time the invention was made to form the paper of the prior art, wherein the pigments comprise the pigments as taught by Grönroos, motivated by the desire of forming a conventional paper materials having an improved lower density and plastically deformable pigment, which allows the opacity to increase while increasing the volume of the pigment, and which allows the pigment to be flattened by calendaring to form the surface of a desired shape, resulting in paper with a high opacity and brightness.

Regarding claim 2, the prior art teaches that the density of the inner part of the filler granule is 40 to 80% of that of the crust part (Grönroos, page 11 lines 25-34).

Regarding claim 3, the prior art teaches that the filler granule consists of pigment particles and a binder (Grönroos, page 9 line 31 to page 10 line 2, page 10 lines 19-23, Claim 27).

Regarding claim 4, the prior art teaches that the density of the pigment particles is 1500 to 7000 kg/m<sup>3</sup> (Grönroos, page 7 lines 22-28).

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Regarding claim 5, the prior art teaches that the density of the filler granule is 400 to 6300 kg/m<sup>3</sup>, whereby the density of the inner part is about 50 to 5700 kg/m<sup>3</sup>, and the density of the crust part is about 600 to 6300 kg/m<sup>3</sup> (Grönroos, page 7 lines 22-28, page 11 lines 25-34).

Regarding claim 6, the prior art teaches that the inner part of the filler granule contains rougher pigment particles in relation to the crust part (Grönroos, page 5 lines 5-12).

Regarding claim 7, the prior art teaches that the porosity of the inner part of the filler granule is higher than that of the crust part, whereby the pore volume of the inner part is 10 to 70% by volume (Grönroos, page 11 lines 25-34).

Regarding claim 8, the prior art teaches that the crust part of the filler granule comprises metal silicate, metal sulphate or metal carbonate particles, which are bound to one another by means of a cross-linked binder, whereby they form a fine and flexible coat that surrounds the inner part (Grönroos, page 10 lines 3-11, page 12 lines 5-9).

Regarding claim 9, the prior art teaches that the filler particles of the filler granule comprise any inorganic substance (Grönroos, page 10 lines 3-5).

Regarding claim 10, the prior art teaches that the particle size ( $\phi$ ) of the granulated filler is 1 to 100  $\mu$ m (Grönroos, page 11 lines 25-34).

Regarding claim 11, the prior art teaches that the substance in the granular form is plastically deformable under the effect of pressure and/or temperature (Grönroos, page 7 lines 30-34).

Regarding claim 12, it is reasonable for one of ordinary skill in the art to expect that the bonding strength of the fibrous web is essentially the same as that of a corresponding fibrous web that contains no filler, and therefore that the claimed property is inherent to the invention of



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the prior art, as the prior art teaches a substantially similar structure and composition as the prior art, and one of ordinary skill in the art would expect that the invention of the prior art would behave in a substantially similar and/or identical manner, absent evidence to the contrary.

Regarding claim 13, the prior art teaches that the amount of filler used is less than 50wt% (Morita, column 1 line 8 to column 5 line 6). It should be noted that in the case where the claimed ranges overlap or lie inside ranges disclosed by the prior art, a prima facie case of obviousness exists. *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). Additionally, it would have been obvious to one of ordinary skill in the art at the time the invention was made to vary the amount of filler used, such as within the claimed range, based on the desired brightness, smoothness, and opacity of the resulting coated paper web, suitable for the desired application.

Regarding claim 25, the prior art teaches that the amount of filler used is less than 50wt% (Morita, column 1 line 8 to column 5 line 6). It should be noted that in the case where the claimed ranges overlap or lie inside ranges disclosed by the prior art, a prima facie case of obviousness exists. *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). Additionally, it would have been obvious to one of ordinary skill in the art at the time the invention was made to vary the amount of filler used, such as within the claimed range, based on the desired brightness, smoothness, and opacity of the resulting coated paper web, suitable for the desired application.

Regarding claim 26, the prior art teaches that the web further comprises a coating composition which coats the amount of solids (Morita, column 1 line 8 to column 5 line 6, Examples 1-3).

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Regarding claims 27-35, Morita teaches a fibrous web comprising a plurality of fibers and a filler included between the plurality of fibers, wherein the filler includes a granular form, the fibrous web containing less than 50wt% of the filler (Morita, column 1 line 8 to column 5 line 6, Examples 1-3, claims 1-5). It should be noted that in the case where the claimed ranges overlap or lie inside ranges disclosed by the prior art, a prima facie case of obviousness exists. *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). Additionally, it would have been obvious to one of ordinary skill in the art at the time the invention was made to vary the amount of filler used, such as within the claimed range, based on the desired brightness, smoothness, and opacity of the resulting coated paper web, suitable for the desired application.

Morita does not appear to teach that the filler is embedded throughout the plurality of fibers, and that the filler is rotationally symmetrical having the claimed structure.

Regarding the claimed filler being embedded throughout the plurality of fibers, the prior art teaches that the pigments should be impregnated only into the surface of the substrate paper, as impregnating in the entire bulk of the paper decreases the void volume to result in lower sensitivity (Morita, column 2 line 66 to column 3 line 11). However, the prior art does not appear to recite that the pigments are *necessarily* only impregnated into the surface of the substrate paper, as the prior art additionally recites that the depth of impregnation may vary and is not restricted (*Id.*). Additionally, Dow teaches an improved paper comprising a nonwoven web of pulp fibers and substantially spherical particle filler, wherein the particles are enmeshed in the paper web (Dow, page 1 line 11 to page 2 line 90, Tables I-V, claims 1-11). Dow teaches that the particles are preferably between 3 and 50 microns in diameter (*Id.*, page 1 lines 50-53).

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Dow teaches that if papers of minimum bulk density are desired, a maximum quantity of particles is incorporated therein, whereas if a maximum physical strength is desired, generally a small proportion is used (Id., page 2 lines 49-87). Dow teaches that the incorporation of the polymer particles provide, on an equal basis weight comparison, a significant increase in the stiffness of the paper as well as a significant increase in the caliper, which makes it possible to form papers with greater stiffness, lighter weight, and increased caliper (Id.). Based on the method of forming the paper, such as at page 1 lines 58-70, the particles appear to be embedded throughout the plurality of fiber. Dow teaches that the improved paper has improved opacity, stiffness and insulating properties and significantly reduced density without substantial loss in tear-resistance and bursting strength (Id., page 1 lines 34-39). It would have been obvious to one of ordinary skill in the fibrous paper web art at the time the invention was made to form the fibrous paper web of the prior art, wherein the filler is embedded throughout the plurality of fibers, as taught by Dow, motivated by the desire of forming a conventional fibrous paper web having minimum bulk density in addition to significantly increasing the stiffness and caliper of the paper, while improving opacity.

Regarding the claimed filler structure and composition, Morita teaches that the filler is a substance in particle or granular form, such as kaolin, titanium oxide, magnesium silicate, calcium silicate, and calcium carbonate. However, the prior art does not appear to teach that the filler is rotationally symmetrical having the claimed structure.

Grönroos teaches a fibrous web suitable for use in forming paper, comprising fibrous material and a filler, wherein the filler is a substance in granular form, having a rotationally symmetrical shape and an inner part and a crust part, whereby the density of the inner part is

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lower than the crust part, wherein the density of the inner part is about 10 to 90% of that of the crust part, wherein the filler may additionally comprise a binder to attach the filler to the fibrous web (page 1 lines 3-26, page 3 lines 2-9, page 4 line 28 to page 5 line 31, page 7 lines 4-34, page 8 lines 9-19, page 9 lines 19-29, page 10 lines 3-29, page 11 lines 25-34, page 12 lines 5-9, page 12 line 32 to page 13 line 4). Grönroos teaches that the pigment comprises a lower density than conventional pigments, which allows the opacity to increase while increasing the volume of the pigment, and that the pigment is plastically deformable, which allows the pigment to be flattened by calendaring to form the surface of a desired shape. Grönroos teaches that the filler or pigment provides the paper with a high opacity and brightness due to the pigment. It would have been obvious to one of ordinary skill in the paper art at the time the invention was made to form the paper of the prior art, wherein the pigments comprise the pigments as taught by Grönroos, motivated by the desire of forming a conventional paper materials having an improved lower density and plastically deformable pigment, which allows the opacity to increase while increasing the volume of the pigment, and which allows the pigment to be flattened by calendaring to form the surface of a desired shape, resulting in paper with a high opacity and brightness.

Regarding claims 27-35, the prior art does not appear to teach the claimed level of smoothness. However, the prior art recognizes that the surfaces of paper should have good mechanical properties such as good smoothness (Grönroos, page 1 lines 28-32), and that paper is known to be treated with pressure and/or heat to smooth and even the surface to provide the final printing surface, since the pigments can deform and flatten (Id., page 13 lines 5-11). Therefore, it would have been obvious to one of ordinary skill in the paper art at the time the invention was

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made to form the paper material of the prior art, wherein the paper material is smoothed to a desired degree such as within the claimed range, as suggested by the prior art, motivated by desire of forming a conventional paper material having the desired smoothness by calendaring suitable to provide a smooth and even surface for the desired application.

Regarding claim 28, the prior art teaches that the web further comprises a coating composition which coats the amount of solids (Morita, column 1 line 8 to column 5 line 6, Examples 1-3).

Regarding claims 29-31, the prior art teaches that the density of the inner part of the filler granule is 40 to 80% of that of the crust part (Grönroos, page 11 lines 25-34).

Regarding claims 30 and 31, the prior art teaches that the filler granule consists of pigment particles and a binder (Grönroos, page 9 line 31 to page 10 line 2, page 10 lines 19-23, Claim 27).

Regarding claim 31, the prior art appears to teach that the inner portion of the granular form contains rougher pigment particles than the crust portion of the granular form (Grönroos, page 8 lines 9-19).

Regarding claim 32, the prior art teaches that the porosity of the inner part of the filler granule is higher than that of the crust part, whereby the pore volume of the inner part is 10 to 70% by volume (Grönroos, page 11 lines 25-34).

Regarding claim 33, the prior art teaches that the crust part of the filler granule comprises metal silicate, metal sulphate or metal carbonate particles, which are bound to one another by means of a cross-linked binder, whereby they form a fine and flexible coat that surrounds the inner part (Grönroos, page 10 lines 3-11, page 12 lines 5-9).

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Regarding claim 34, the prior art teaches that the particle size ( $\phi$ ) of the granulated filler is 1 to 100  $\mu\text{m}$  (Grönroos, page 11 lines 25-34).

Regarding claim 35, the prior art teaches that the substance in the granular form is plastically deformable under the effect of pressure and/or temperature (Grönroos, page 7 lines 30-34).

6. Claims 1-13 and 25-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morita in view of Dow, Grönroos and US Pub. No. 2003/0106658 to Ilmonen.

Regarding claims 1-13 and 25-35, the prior art appears to teach the claimed amount of filler used. As additional evidence, Ilmonen teaches a substantially similar coated paper web comprising a fibrous paper web and a filler composite, wherein the filler composite comprises a pigment such as kaolin and a binder, and wherein the fibrous web weighs 50-450  $\text{g/m}^2$  or 30-250  $\text{g/m}^2$ , preferably 30-80  $\text{g/m}^2$ , and the filler composite weighs approximately 50-70  $\text{g/m}^2$  (Ilmonen, paragraphs 0003, 0005-0007, 0027-0031, 0039, 0040, 0046, 0053-0056, claims 1-24). Ilmonen teaches that a webs have excellent printability properties, good smoothness, and high opacity and brightness. It would have been obvious to one of ordinary skill in the fibrous paper web art at the time the invention was made to form the invention of the prior art, with the fibrous web and filler composite weights, as taught by Ilmonen, motivated by the desire to form a conventional fibrous paper web with fibrous paper web and filler composite weights known in the art to predictably result in coated paper webs which are bright while maintaining the smoothness and the gloss of the paper, and which have excellent printability properties, good smoothness, and high opacity and brightness. It should be noted that in the case where the

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claimed ranges overlap or lie inside ranges disclosed by the prior art a prima facie case of obviousness exists. Additionally, it would have been obvious to one of ordinary skill in the art at the time the invention was made to vary the amount of filler used, such as within the claimed range, based on the desired brightness, smoothness, and opacity of the resulting coated paper web, suitable for the desired application.

### ***Response to Arguments***

7. Applicants' arguments with respect to claims 1-13 and 25-35 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PETER Y. CHOI whose telephone number is (571)272-6730.

The examiner can normally be reached on Monday - Friday, 08:00 - 15:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Larry Tarazano can be reached on (571) 272-1515. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Peter Y Choi /PYC/  
Examiner, Art Unit 1786

/D. Lawrence Tarazano/  
Supervisory Patent Examiner, Art Unit  
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